REMARKS

Claims 2-29, 31-33 and 36-47 are cancelled and new claims 48-108 are added by this amendment. Support for the new claims can be found throughout the application as filed, for example at page 13, line 19 to page 15, line 26; page 26, lines 16-29; page 27, lines 18-27; and by the claims as originally filed (e.g., claims 32 and 33, now canceled). No new matter has been added by this amendment.

Upon entry of this amendment, claims 1, 30, 34, 35 and 48-108 will be pending. Claims 1, 30, 107 and 108 are withdrawn from consideration.

Restriction/Election and Rejoinder

In addition to the claims under examination, claims in restriction groups I and VI are pending (claims 1, 30, 107 and 108). The remaining claims directed to non-elected restriction groups have been canceled. Claims 1, 30, 107 and 108, although not presently under examination, have been amended to depend, directly or indirectly, from the composition claims under examination. Once the claims presently under examination are deemed allowable, Applicants request rejoinder and examination of claims 1, 30, 107 and 108 (restriction groups I and VI), as permitted under M.P.E.P. § 821.04.

Claims 34, 35, 52, 55, 58, 59, 64, 67, 70, 71, 76, 79, 82, 83, 88, 91, 94, 95, 100, 103 and 106 read on the originally elected species, namely Wnt 3a. Applicants respectfully request consideration and search of additional Wnt species as provided under M.P.E.P. § 809.02(a).

The Invention

The inventors have found that Wnt signaling can maintain anagen phase and hair inductive activity in dermal papilla (DP) cells. The presently pending claims feature a cell culture that includes a DP cell cultured with a Wnt polypeptide in an amount sufficient to promote or maintain anagen phase of the DP cell. The claimed cell cultures can be used, for example, in DP cell grafts.

Rejections Under 35 U.S.C. §112

Claim 35 is rejected under 35 U.S.C. § 112, second paragraph, as being unclear. This rejection has been met by amending claim 35 to recite a proper antecedent basis, thereby overcoming this rejection.

Rejections Under 35 U.S.C. §§102 and 103

Claims 34 and 35 are rejected under 35 U.S.C. § 102 as being anticipated by one of U.S. Patent No. 5,686,289 to Humes ("Humes"), U.S. Patent No. 6,485,972 to McMahnon ("McMahnon"), U.S. Patent No. 5,208,145 to Rogers ("Rogers"), or Japanese Patent JP 408066183A to Sato ("Sato"). Claim 35 is also rejected under 35 U.S.C. § 103(a) as being unpatentable over Humes.

This rejection has been addressed by amending the claims (and adding new claims) to recite the presence of a DP cell and a Wnt polypeptide in a cell culture medium. Language relating to intended use has been deleted from the claims. None of the cited references teach or suggest a DP cell cultured with a Wnt polypeptide. Indeed, none of these references even mentions DP cells. Thus, the presently pending claims are novel and unobvious over the cited references, as discussed in more detail below.

Humes relates to bioartificial devices and culturing cells (e.g., renal cells) in media. While Humes does disclose the use of Wnt-1 and Wnt-4 as soluble factors in cell culture media, Humes does not disclose or suggest a cell culture that includes DP cells, or promoting or maintaining anagen phase in a DP cell, as recited in the present claims.

McMahnon discloses that Wnt signaling is involved in the development of female reproductive organs in the embryo and in oocyte development in adult animals. While McMahnon does disclose culturing cells in a medium including Wnt, nowhere does McMahnon disclose or suggest a cell culture that includes DP cells or promoting or maintaining anagen phase in such cells, as recited in the pending claims.

Rogers relates to methods of identifying cation channels expressed in cultured cells and methods for screening compounds to determine if they are agonists or antagonists of cationic ligand-gated channels. Rogers does not teach or suggest a cell culture that includes DP cells and

a Wnt polypeptide, nor does Rogers teach or suggest that Wnt can promote or maintain the anagen phase of DP cells.

Sato discloses methods for controlling cell activity that lowers or stops the incorporation of extracellular materials without inhibiting cell proliferation. Sato does not teach or suggest a cell culture that includes DP cells as recited in the presently pending claims, nor does Sato teach or suggest the use of a Wnt polypeptide to promote or maintain anagen phase of DP cells as recited in the presently pending claims.

In sum, the cited references do not teach or suggest a cell culture that includes a DP cell co-cultured with a Wnt polypeptide in an amount sufficient to promote or maintain anagen phase gene expression in the DP cell, as featured in the pending claims. Thus, the claims are novel. Further, a *prima facie* case of obviousness has not been made as the cited references, alone or in any combination, provide no suggestion or motivation for a skilled artisan to arrive at the claimed compositions. In view of the foregoing, Applicants ask that the rejection be withdrawn.

Enclosed is a Petition for Extension of Time along with a check for the required fee and a check for excess claim fees. Please apply any other charges or credits to deposit account 06-1050, referencing attorney docket number 10287-058001.

Respectfully submitted,

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